

2106

CWM / MCB

U
175
C2
07
1943

NOT TO BE PUBLISHED

The information given in this document is not to be communicated, either directly or indirectly, to the Press or to any person not holding an official position in His Majesty's Service.

ORGANIZATION, TASKS AND HANDLING OF R.E.M.E. WORKSHOPS IN THE FIELD

Issued by the COMMANDER-IN-CHIEF
HOME FORCES

REF TECH

U

175

C2

07

1943

HOME FORCES,
January, 1943.

Issued to Lieutenant-Colonels' Commands in Home Forces.

(Reprinted in Canada, April, 1943, by permission of the Controller,
His Majesty's Stationery Office.)

ORGANIZATION, TASKS AND HANDLING OF R.E.M.E. WORKSHOPS IN THE FIELD

INDEX

Definitions	Page 1
Chapter I	
General Notes on Organization, Tasks and Handling of R.E.M.E. Workshops in the Field	Paras. Page 1
Responsibility	1
Organization	2- 7
Handling	8-11
Co-operation with R.A.O.C.	12
" " R.A.S.C.	13
Cannibalization	14
Protection	15
Chapter II	
Recovery in the Field	Page 3
Equipment	1- 3
Organization	4- 8
Casualty Reporting	9-10
Procedure	11-13
Planning	14-16
Chapter III	
Handling of 1st Echelon R.E.M.E. Units	Page 6
Organization	1- 3
Equipment	4- 8
Chapter IV	
Handling of 2nd Echelon Workshops ..	Page 8
Organization	1- 4
Handling	5
Control	6-10
Protection	11
Chapter V	
Handling of 3rd Echelon Workshops and Recovery Companies	Page 10
Organization	1- 4
Handling	5
Chapter VI	
Handling of 4th Echelon R.E.M.E. Workshops	Page 12
General	1- 4
Repairs	5
Handling and Layout	6- 7
Protection	8
APPENDIXES.	
A. Breakdown Card	Page 14
B. Use of wireless in reporting casualties ..	Pages 15-17
C. Tank recovery and replacement diagram ..	Page 18

DEFINITIONS

1. *An assembly* is a combination of components, forming a self-contained part of a vehicle or equipment, e.g., engine, gearbox, carburetter, recoil system.
2. *A component* is a specific part of an assembly, vehicle or equipment.
3. *Recovery* is the process of removing a vehicle or equipment which has become a casualty from where it lies to a selected site.
4. *Casualties* will be classified as follows:—
 - “X” CASUALTY—one due to a temporary stoppage only and repairable by the crew of the vehicle without outside assistance.
 - “Y” CASUALTY—one requiring assistance from repair personnel and likely to be repairable by unit fitters, light aid detachments and 2nd echelon workshops.
 - “Z” CASUALTY—one requiring extensive repair or replacement, involving evacuation of the vehicle.
5. *Echelon repairs*.—Repairs are designated 1st, 2nd, etc., echelon repairs according to whether they are dealt with in 1st, 2nd, etc., echelon workshops.
6. *Echelon Repair Schedules* is the title of a R.E.M.E. publication which indicates the scope of repair normally carried out in the various echelons of the repair organization.
7. *A light aid detachment* is a small R.E.M.E. sub-unit permanently attached to certain mechanized units and to infantry brigades.
8. *Workshop*.—A workshop is a R.E.M.E. unit designed to carry out repair and recovery to the vehicles and equipments of the formation to which it is allotted.
9. *An advanced workshop detachment* is a detachment of a 2nd echelon R.E.M.E. workshop formed as necessary to carry out repair and recovery in forward areas.

CHAPTER I

GENERAL NOTES ON THE ORGANIZATION, TASKS AND HANDLING OF R.E.M.E. WORKSHOPS IN THE FIELD.

Responsibility

1. Repair and recovery, beyond the capacity of units, of mechanical and electrical equipment is the responsibility of the R.E.M.E.

A few exceptions to this allocation of responsibility exist. The chief of these are the repair and recovery of vehicles operated by the R.A.S.C. who carry out all 1st and 2nd line repairs within their capacity, and 1st line repair of signals equipment, which is the responsibility of the Royal Corps of Signals.

Organization

2. *Repairs* are carried out by personnel organized in four echelons as follows:—

1st Echelon—Unit fitters and R.E.M.E. personnel (including light aid detachment) attached to units.

2nd Echelon—Brigade, corps troops, army troops and general troops workshops.

3rd Echelon—Infantry and armoured troops workshops.

4th Echelon—Base R.E.M.E. workshops.

3. *Recovery facilities* are provided in all R.E.M.E. units, other than 3rd echelon workshops and the workshops provided for light anti-aircraft regiments.

4. *Light Anti-Aircraft, Heavy Anti-Aircraft and Searchlight Regiment Workshops* are provided to carry out 1st and 2nd echelon repair for the regiments to which they are attached.

5. *2nd Echelon Workshops*

(a) *In Divisions* (all types) these are divisional troops controlled by C.R.E.M.E. They are provided on a basis of one per brigade called Armoured, Tank and Infantry Brigade Workshops.

(b) *In Corps, Army and L. of C. Troops* these are called Corps Troops, Army Troops and General Troops Workshops respectively. Composite sections can be detached to other workshops when the units or formations they serve are put under command of other formations.

(c) All 2nd echelon workshops are fully mobile.

6. *3rd Echelon Workshops*.—These are army troops. Infantry troops workshops are provided on a scale of one per division or infantry division, and armoured troops workshops on a scale of one per armoured division. These workshops also carry out 3rd echelon repairs for corps troops and army troops.

7. *4th Echelon Workshops*.—These are L. of C. troops. Base and advanced base workshops are allotted on a scale of one of each per army. They are augmented by increments when the composition of the army warrants these.

Handling

8. *Light aid detachments* always remain with their parent units or brigades under the control of the unit or brigade commander and will normally be with "A" echelon. Individual vehicles may at times operate forward with "F" echelon.

9. *2nd Echelon Workshops*

(a) *Siting*: Normally workshops will be sited in the divisional administrative area. Advanced workshop detachments can be sent forward to operate under brigade control in "A" echelon area.

(b) *Move-ment*: Workshops will usually move with the administrative group. A move more than once in 24 hours will seriously reduce the repair capacity of a workshop and entail uncompleted repairs, for which transport is not available, being left behind.

10. *3rd Echelon Workshops*

(a) *Siting*: They will normally be sited near rail or road head and should have good communications with 2nd echelon workshops and corps ordnance field parks.

(b) *Move-ment*: For efficient operation they should remain on one site as long as possible. When a move becomes necessary the new site should be selected with this factor in mind. Although the workshop itself is mobile, no transport is provided on the establishment to carry work in hand.

11. *4th Echelon Workshops*

Siting: These units are large static installations equipped with heavy machinery and they require accommodation comparable with

that of a factory. Accommodation should allow of continuous day and night operation. Road and rail access to each workshop is essential.

Co-operation with R.A.O.C.

12. The efficiency of the repair system depends on provision of adequate mechanical transport spares and material, a R.A.O.C. responsibility. It is essential for the various echelons of R.E.M.E. workshops to maintain close contact with the ordnance field park or depot on which they are based on such questions as:—

- Forecasts of stores requirement.
- Probable dates of requirements.
- Stores outstanding.

Co-operation with R.A.S.C.

13. (a) The evacuation of assemblies from 2nd echelon workshops for repair at 3rd echelon workshops or base is a normal R.A.S.C. commitment.
- (b) The evacuation of heavily damaged tank casualties to base will often be carried out by road using R.A.S.C. transporter companies.

Cannibalization

14. The practice of unit personnel removing serviceable components and assemblies from casualty vehicles and equipment is most undesirable. If cannibalization is necessary to repair important fighting vehicles and equipment it should only be done under the supervision of a R.E.M.E. officer.

Protection

15. R.E.M.E. is a combatant arm of the Service, and R.E.M.E. units must be trained to protect themselves at all times. Personnel carrying out repair and recovery operations in forward areas are particularly vulnerable to enemy action unless protection is already afforded by the dispositions of the forward troops. Special detachments for the protection of this personnel may, therefore, be necessary if undue loss of trained craftsmen and valuable technical equipment is to be avoided.

CHAPTER II

RECOVERY IN THE FIELD

Equipment

1. *General.* Recovery equipment consists of special vehicles and technical appliances designed to unditch or "right" a vehicle or equipment and remove it to a site where it can be repaired or evacuated. It includes breakdown lorries and tractors, recovery tanks, and such items as winches, block and tackle, skidding, tow ropes and special draw bars.

2. *Units.* Units are not normally provided with recovery vehicles or equipment other than recovery tanks in armoured units and the tow ropes carried by vehicles. In certain units there are, however, vehicles equipped with gear which can and should be used for recovery purposes, e.g., winch lorries in R.E. units and gun tractors equipped with winch gear in Royal Artillery units. The crews of these should be trained in recovery work.

3. *R.E.M.E.* Light aid detachments and the different types of R.E.M.E. workshops are provided with recovery equipment scaled to deal with the type of recovery they are likely to have to undertake. For example, armoured brigade workshops have tank transporters, while infantry brigade workshops have not.

Recovery companies are special units for recovery operations only, and have a full scale of suitable equipment.

Organization

4. Forward of rail or road head the responsibility for recovery is as follows:—

- (a) Light aid detachments recover within units.
- (b) 2nd echelon workshops recover from light aid detachments or direct from units.
- (c) Recovery companies or R.A.S.C. tank transporter companies carry out recovery in rear of 2nd echelon.

5. *Recovery Posts.* These are localities to which casualty vehicles and equipments, other than those repairable on site, are taken in the initial stages of recovery. They may be manned by light aid detachments or advanced workshop detachments, or a combination of both.

6. *Recovery Areas* are localities, generally separate from recovery posts, in which casualties are collected which diagnosis has shown to be beyond the repair capacity of 1st or 2nd echelon workshops. Casualties are concentrated in these areas either direct or via recovery posts for convenience of subsequent evacuation to 3rd or 4th echelon workshops. The areas selected must be easily accessible to loaded transporters.

7. *R.A.S.C. Tank Transporter Companies.* These companies, equipped with either heavy or light transporters, are allotted as G.H.Q., Army or L. of C. troops. The primary role of transporter companies is to lift armoured units in long moves so that track and tank wear can be reduced to a minimum. When not so employed, some of the transporters will be allotted for recovery and for the delivery of replacement tanks.

8. *Recovery Companies* are army troops provided on the scale of one per corps. The normal task of these units is to clear casualties from recovery areas back to 3rd echelon workshops or to railhead. Their use enables maintenance of 2nd echelon recovery vehicles to be confined to the forward areas. Each company includes a recovery section for each division in the corps. The sections are administratively self-supporting, and can be sub-allotted to armoured divisions or divisions if the operations require it.

Casualty Reporting

9. The basis of efficient repair and recovery is rapid reporting and accurate diagnosis of casualties. Reports will be initiated by means of a casualty card, *vide* specimen in Appendix "A", and by R.T. where practicable. This card will only be used by personnel in charge of vehicles and equipments if unable to arrange repair on the spot, i.e., by unit mechanics or light aid detachment. If unable to arrange immediate repair, the card will be made out by the driver and sent by him by means of the first passing officer, C.M.P. or motor-cyclist, who will hand it in to the nearest unit headquarters. The unit receiving the card will either initiate repair action or pass to the nearest R.E.M.E. unit.

10. *Use of Wireless.* The following wireless links are necessary if the facilities for rapid repair and recovery within armoured formations are to be fully exploited:—

- (i) Unit technical officer to E.M.E. i/c light aid detachment.
- (ii) E.M.E. i/c light aid detachment to advanced workshop detachment of the brigade workshop.
- (iii) Advanced workshop detachment to brigade workshop.
- (iv) Brigade workshop to H.Q., R.E.M.E., of the division.

Diagrams showing these communications are at Appendix "B".

Recovery Procedure in Various Phases of Operations

11. *Approach March.* (a) Units will be responsible for getting casualty vehicles clear of the road and will tow forward as many casualties as possible with unit vehicles.
- (b) Light aid detachments will clear to the sides of the road casualties which cannot be dealt with by unit vehicles, at the same time carrying out such minor repairs as they can on vehicles which drop out of the column.
- (c) In approach it will be normal to form advanced workshop detachments of 2nd echelon workshops and put them under command of brigades. Recovery vehicles of these detachments will provide recovery facilities at defiles, bridges, etc., and extra recovery facilities for the brigade when contact is made.
- (d) The recovery vehicles of advanced workshop detachments will tow forward all casualties which are within their repair and recovery capacity. All other casualties will be reported to the C.R.E.M.E. to be dealt with by workshops.
12. *Battle.* Advanced workshop detachments will normally be placed under command of brigades to form recovery posts in the "A" echelon area. In cases where the distance between "A" echelon and the administrative area is considerable, it may be necessary to site a recovery post forward under divisional control to accelerate the clearance of brigade recovery posts.
13. *After Battle.* The ability to effect rapid and economical clearance of the battlefield is a vital factor in modern fighting. The plan for battlefield clearance will be influenced by the following factors:—
 - (a) Reports of casualties will arrive through a variety of channels, including search parties.
 - (b) Recovery should only be done if repair on site is impracticable.
 - (c) Need for protection of the battlefield during clearance.
 - (d) Availability of recovery vehicles of non-divisional units, e.g., recovery companies.
 - (e) Siting of recovery areas to which casualties requiring 3rd or 4th echelon repair will be evacuated.

Recovery Planning

14. Repair on site should be done whenever possible. This is particularly important in armoured formations. The essence of recovery planning is to ensure that all fighting vehicles and equipments reach the battle, are maintained during battle, and are quickly made ready for succeeding battles. Unless the recovery resources are disposed initially to meet these requirements and recovery personnel are well drilled in their work, they will not be able to compete with their task. For an effective plan to be produced the following factors must be taken into account:—

- (a) General staff estimate of casualties.
- (b) Number of replacement tanks and other equipment likely to be available.
- (c) Availability of recovery vehicles and transporters.
- (d) Limitations on use of roads.
- (e) Further operations.

If adequate recovery vehicles and transporters are not available from formation resources, demands for additional vehicles will be submitted to higher formation. Transporters are heavy vehicles which can only operate on roads or hard ground. If they break down they can easily block a road for a con-

siderable period. They will only be allowed to operate in forward areas as part of the divisional or higher formation recovery plan when road conditions are such that they can be used without danger to other operational movements which may be taking place at the same time.

15. Transporters should travel loaded as often as possible. When moving forward they should carry replacement tanks, when moving back they should carry casualties (*see* Appendix "C").

16. The headings for the recovery paragraphs of a divisional administrative order will normally include:—

- (a) Restrictions on recovery including limitations on use of roads.
- (b) Locations of recovery posts and areas, brigade workshops and 3rd echelon workshops.
- (c) Allotment of advanced workshop detachments.
- (d) Role of R.A.S.C. transporters (if allotted).

C.R.E.M.E. will issue his own technical instructions through R.E.M.E. channels implementing the administrative order.

CHAPTER III

HANDLING OF 1st ECHELON R.E.M.E. UNITS

Organization

1. *General.* There are two types of 1st echelon R.E.M.E. sub-unit, neither of which is administratively self-supporting:—

- (a) *The Light Aid Detachment.* Light aid detachments are of various types, depending on the unit or brigade to which they are permanently attached. The differences are due to variations in the trade qualifications of the craftsmen on the establishment, and in the quantity and type of recovery equipment provided. Where there is an officer in charge of the light aid detachment it is normal to delegate to him the disciplinary powers of a company (or equivalent) commander as regards the light aid detachment personnel. It is impracticable to split light aid detachments into repair and recovery elements.
- (b) *The Light and Heavy Anti-Aircraft and Searchlight Regiment Workshops.* These combine the tasks of 1st and 2nd line repair, and are composed of headquarters with separate battery and radio maintenance subsections. Light anti-aircraft workshop type "A" deals with 1st echelon work only.

2. *First Echelon Repair and Recovery Personnel.* Recovery and first echelon repair can be undertaken by the following personnel:—

- (a) Vehicle drivers.
- (b) Unit driver mechanics, motor mechanics, fitters, guns (R.A.), instrument mechanics (R. Signals), etc.
- (c) Individual R.E.M.E. craftsmen attached to units, e.g., armourers and fitters M.V. attached to infantry battalions.
- (d) Light aid detachments.

The E.M.E. or W.O. in charge of the light aid detachment is the adviser of the brigade or unit commander on the effective use of all the resources available in 1st echelon so as to obtain the best results.

- 3. *General Principles.* (a) It must be remembered that stores issued to units are scaled on the assumption that the standard of unit maintenance is high.

- (b) Driver mechanics in units are primarily fighting troops, hence the part they can play in repair and recovery work is limited. They are responsible for doing such minor repair and recovery as they can, consistent with their fighting role and the time, stores and tools available.
- (c) Fitters M.V. (R.E.M.E.), fitters, gun (R.A.), instrument mechanics (R. Signals) and motor mechanics are more highly skilled tradesmen, capable of undertaking more extensive repairs. The availability of stores and tools, however, coupled with the limited time in which repairs can be undertaken in forward areas, restrict their employment to minor repairs and recovery work and to rapid diagnosis of faults.
The extent of 1st echelon repair for each type of vehicle is given in the "ECHELON REPAIR SCHEDULES".
- (d) During all phases priority will be given to the repair of lightly damaged casualties.
- (e) First echelon repair consists of:—supervision of driver maintenance, adjustments and repairs by exchange of minor components and sub-assemblies.

4. *Repairs.* Equipment includes tools either on the vehicle or equipment or issued separately to the various tradesmen. Stores are issued in accordance with the unit A.F. G:1098—which does not include vehicles and the unit first aid outfit which is scaled to suit the make of vehicle with which the unit is equipped.

5. *Drill.* A "drill" will be evolved in each type of unit covering the various aspects of 1st line repair and recovery in the different phases of battle. The drill will cover:—

- (i) Disposal of the repair and recovery resources.
- (ii) Procedure for reporting casualties including use of casualty card.
- (iii) Distribution of spare parts to the various casualties.
- (iv) Action to be taken by, and disposal of, crews of casualty vehicles and equipments.

6. *Approach March.* The light aid detachment will move in rear of its unit or brigade. Its primary tasks are to keep roads clear, to assist drivers in the repair of "X" casualties, and diagnosis of "Y" casualties. Since the light aid detachment is not administratively self-supporting it will not be separated from its parent unit. At the end of the move the first duty will be to collate reports of casualties which have been towed forward by units and to select lightly damaged vehicles for repair.

7. *Battle.* The light aid detachment may be used to operate a recovery post, or to form part of a recovery post opened by an advanced workshop detachment. Its duties will comprise:—

- (a) Repair on site of casualties within its capacity.
- (b) Recovery to the recovery post of casualties which cannot be dealt with on site.
- (c) Reporting to 2nd echelon workshop casualties beyond its recovery or repair capacity.

8. *After Battle.* The light aid detachment will concentrate on the clearance of casualties from the battle-field, the inspection and selection of lightly damaged casualties for repair and the reporting of casualties which are beyond its repair capacity.

CHAPTER IV

HANDLING OF 2nd ECHELON WORKSHOPS

Organization

1. *Composition.* Each workshop is built up of a varying number of sections, or "bricks", in accordance with the composition of the formation to which allotted. There are variations in the size of similar bricks in different types of workshops. Examples of "bricks" are:—

Headquarters of a workshop	Wireless repair section
Armament repair section	Instrument repair section
Tank repair section	Stores section
Vehicle repair section	Recovery section
(including "B" vehicles and carriers)	

2. *Equipment.* Equipment is provided for speedy removal and replacement of assemblies. Each craftsman has his own set of tools and there are machinery lorries including the following special types: drill, lathe, and battery chargings; electric and gas welding; wireless and instrument repairs. There is also equipment for brazing, blacksmithing, electrical and other repair work, carried in 3-ton lorries. Each workshop has a stores section manned by R.A.O.C., with up to fourteen 3-ton lorries carrying spares and assemblies. These spares are for the use of the workshops and NOT intended as the means of replenishing such holdings.

3. *Recovery.* 2nd echelon workshops in divisions provide a pool of recovery equipment at the disposal of the divisional commander. The C.R.E.M.E. of the division will dispose recovery equipment in accordance with the divisional plan.

4. *Repair.* (a) 2nd echelon workshops repair casualty vehicles and equipment by assembly replacement. They do not normally strip assemblies and replace components.

(b) The layout of the repair facilities of 2nd echelon workshops will change with the tactical situation. When advanced workshop detachments of brigade workshops are formed, some stores vehicles—usually carrying assemblies and consumable items—should accompany them. This is especially important in tank and armoured brigades. Communications must be such that replacement stores can be called forward quickly.

(c) *Scaling of Spares.* The basis of effective repair in the field is the provision of adequate spare parts. The type and variety of spares needed will change constantly in accordance with the make and age of the vehicles and equipments, and the condition of ground and weather in which the units are operating. It is the responsibility of the C.R.E.M.E. to anticipate requirements with these factors in mind, and ensure that the scaling of the workshops' stores sections are continuously reviewed and adjusted.

Handling

5. Each 2nd echelon workshop consists of a number of specialist groups as follows:—

(a) *Control Group* composed of the O.C. workshop, an officer or warrant officer, clerks and despatch riders.

(b) *Advanced workshop detachment*, if formed, comprising an officer, selected recovery vehicles, welding truck, service trucks, store lorries, some repair personnel, despatch riders and wireless truck (if allotted). The exact composition will vary with each tactical situation.

(c) *Main Body*, commanded by the two i/c workshops, and comprising:—

- (i) *Harbouring Party*—responsible for reconnaissance and layout of harbour area, and guiding in the main body.
- (ii) *Stores Section*.
- (iii) *Workshop Group*—repair personnel and equipment.
- (iv) *Machinery Group*—machinery lorries and operating craftsmen with equipment.
- (v) *Recovery Section*—those recovery vehicles not in the advanced workshop detachment, and transport vehicles, including any R.A.S.C. transporters attached. The workshops will normally move grouped as above in the order shown.

6. *Control*. Control group will operate well forward, preferably near the headquarters of the brigade it is supporting, or with the advanced workshop detachment.

7. *Siting of Workshops*. The following are the requirements for a good working site:—

- (a) Good standings for the heavy stores and machinery lorries.
- (b) Easy access to a main road, with a good, hard entrance.
- (c) Covered accommodation for the casualty vehicles under repair. Although workshop shelters are carried in the unit, they cannot give such satisfactory cover as barns or buildings, if the latter are available.

In allotting an area for a workshop, account must be taken of the space required for vehicles under repair. These may amount to as many as 30 at any one time. It is desirable to site advanced workshop detachments in locations which can subsequently be developed for use by brigade workshops.

8. *Movement*. During movement, workshops will normally remain in the administrative area, moving under the orders of the commander, administrative group. Advanced workshop detachments may either be placed under command of brigades or operate directly under C.R.E.M.E. to form recovery posts on the routes in use. When under brigade command, advanced workshop detachments will usually move with the brigade "A" echelon transport.

9. *Battle*. (a) Advanced workshop detachments, with extra repair personnel and stores, if necessary, will operate in the "A" echelon area. Duties will be:—

- (i) Collection of casualty reports of vehicles beyond unit repair and recovery capacity.
- (ii) Organization of repair of casualties on site or at recovery posts.
- (iii) Recovery of vehicle casualties to recovery posts or areas.
- (iv) Maintaining supply of spares from workshops.
- (v) Diagnosis of "Y" and "Z" casualties.
- (vi) Reporting of casualties beyond their repair or recovery capacity to workshops.

(b) The main body will operate in the administrative area. Its duties will be:—

- (i) Manning the divisional recovery post (if formed).
- (ii) Arranging for the collection of "Y" casualties from brigade recovery posts for repair.
- (iii) Repair of "Y" casualties.
- (iv) Quick provision of spares to advanced workshop detachments.
- (v) Reporting location and details of "Z" casualties to C.R.E.M.E.

10. *After Battle.* (a) Advanced workshop detachments will keep in close touch with the repair and recovery situation in brigade areas.
- (b) C.R.E.M.E., either by visiting advanced workshop detachments, or from reports from advanced workshop detachments, will assess the load on each, decide how he can best dispose of his resources and act accordingly.
- (c) C.R.E.M.E. will report to the staff, and to his representative at higher formation, work beyond his capacity.

Protection

11. Workshops will normally be sited within administrative areas, gaining protection from the dispositions of other troops of the administrative group. Nevertheless in each workshop a defence plan will be made, to fit into the general defence scheme for the area. It will make full use of all weapons available and practice in manning defence posts must be carried out immediately on arrival at a new site.

In laying out the site, concealment from both ground and air will be important as one of the chief means of protection.

On the move, workshop columns will be responsible for their own protective arrangements.

CHAPTER V

HANDLING OF 3rd ECHELON R.E.M.E. WORKSHOPS AND RECOVERY COMPANIES

Organization

1. *Workshops.* 3rd echelon workshops are army troops provided on a scale not exceeding one for each division of an army as follows:—

- (a) Infantry troops workshops for divisions and infantry divisions.
- (b) Armoured troops workshops for armoured divisions.

They are not usually sub-allotted below armies.

Each workshop is composed of a headquarters and two sections, one section for repair of armoured vehicles and equipment, the second for non-armoured vehicles and equipment. These workshops also carry out 3rd echelon repairs for corps, army and other troops in the vicinity.

2. *Recovery Companies.* Recovery companies are army troops provided on a scale of one company for each corps in the army. Each company is composed of a headquarters and sections, one section for each division of the corps it supports. The O.C. company will work in close co-operation with the R.E.M.E. staff of the formations which his company is supporting. To assist in finding casualties, and for inter-communication, one despatch rider is provided for each recovery vehicle.

Personnel and Equipment

3. *Workshops.* Personnel in 3rd echelon workshops are provided for two purposes:—

- (i) Overhaul of assemblies.
- (ii) Repairs to complete vehicles and equipments.

The equipment provided for repairs to complete vehicles and equipments is similar to that in 2nd echelon workshops, i.e., machinery lorries, welding plant, hand tools, etc. There is no equipment of "specialist" personnel for wireless repairs, but there is a machinery lorry and personnel for repairs to field instruments (telescopes, binoculars, rangefinders, etc.).

4. *Recovery Companies.* The bulk of the personnel are semi-skilled, i.e., driver mechanics to man the recovery lorries. Each section has:—

- (a) Two 3-ton recovery lorries.
- (b) Four recovery tractors.
- (c) One heavy tractor (D.8 tracked and usually carried on a trailer).
- (d) Two 30-ton transporters.
- (e) Two 40-ton transporters (tractor and trailer type).
- (f) Two 7½-ton trailers.

Handling

5. *Recovery Companies.* The use of these units is dealt with in detail in Chapter II. Recovery companies will be sited in the rear of the administrative area of the corps they support, usually in close proximity to a 3rd echelon workshop or to rail or road head.

When companies or sections are sub-allotted to corps or divisions, they will usually operate from the appropriate administrative area.

6. Workshops

(a) *General.* Due to the nature of their work and the fact that they cannot operate normally in the theatre of operations in the opening stages, they will be faced by an accumulation of work to begin with. The amount of work coming in will depend on several factors, of which the following are the most important:—

- (i) Number of "Z" casualties due to enemy action or accidents.
- (ii) Extent of movement of formations resulting in 2nd echelon workshops being unable to operate at full capacity.
- (iii) Number of damaged assemblies removed in 2nd echelon workshops and passed to 3rd echelon workshops for repair or overhaul. To meet this load 3rd echelon workshops will remain concentrated; advanced workshop detachments will not be formed.

(b) *Movement.* 3rd echelon workshops will move normally in long bounds according to the tactical situation. Once established and open for work they should remain in the same site as long as possible and, unless the circumstances are exceptional, never for less than seven days. Previous to the move it will be essential for a comprehensive reconnaissance of the accommodation allotted to be carried out.

Arrangements will have to be made in good time for disposal of work in hand. This may be accomplished either by:—

- (i) Leaving a rear party to complete it.
- (ii) Handing over to an incoming workshop.
- (iii) Carrying it forward—in which case additional transport will be required.
- (iv) Evacuation to base.

If, after a battle, it becomes necessary to move a 3rd echelon workshop forward, consideration should always be given to the desirability of siting it close to the mass of casualties to be repaired.

(c) *Siting.* Reasonable covered accommodation with hard standings is required in European theatres if these workshops are to work efficiently in all weathers. Other desirable features are:—

- (i) Proximity to corps rail/roadhead.
- (ii) Good road communications with 2nd echelon workshops.
- (iii) Close to R.A.O.C. field parks, to ensure a quick supply of replacement components.

- (d) *Repair Tasks.* 3rd echelon workshops provide the link between the mobile 2nd echelon workshops with formations and the static workshops at the base. Assembly repair requires a different category of craftsmen, working under better conditions of light, cover and freedom of movement than can be expected in the forward area, hence it will be abnormal for this work to be attempted in 2nd echelon workshops. 3rd echelon workshops also take over the repair of complete vehicles and equipments which cannot be repaired in 2nd echelon workshops for technical or tactical reasons. There are no definite rules as to the extent of work of this nature which should be undertaken, but experience and the situation as regards movement will dictate which jobs should be relegated direct to base workshops.

CHAPTER VI

HANDLING OF 4th ECHELON R.E.M.E. WORKSHOPS

General

1. 4th echelon workshops carry out all natures of repairs to vehicles, equipments, instruments, etc., damaged beyond repair capacity or load capacity of 2nd and 3rd echelon workshops.

2. *Composition.* Base workshops are provided for each army in the field, each comprising a headquarters, advanced and main components, and additional increments. The advanced and main components are together capable of carrying out 4th echelon repairs for a force of three divisions. Increments are added for each division over three, and for the additional troops included in corps and army. As an indication of the size of a base workshop, a workshop to maintain an army comprising ten divisions requires some 40 officers and 5,000 other ranks.

The advanced and main components and each of the increments are divided into separate sections for the repair of:—

- (a) Armoured fighting vehicles.
- (b) Other vehicles.
- (c) Armament, small arms, wireless and instruments.

3. *Equipment and Accommodation.* The equipment of a base workshop is scaled to undertake continuously the heaviest types of repair, hence covered accommodation of the factory type, with power, light, heat, water and road and rail access is essential if the workshop is to function efficiently within reasonable time. Mobile lifting gear for use on tanks and heavy vehicles is provided as workshops' equipment, but overhead travelling cranes will be necessary to enable the shops to work to full capacity.

To enable damaged vehicles, guns, etc., to be collected from quayside or railhead, recovery vehicles are provided on the establishment.

4. *Stores.* Stores are supplied by R.A.O.C. base ordnance depots. In each section of the workshops small stocks of stores are held to cover day-to-day requirements; bulk demands being submitted to R.A.O.C. as and when necessary.

Repairs

5. 4th echelon workshops will undertake most types of repairs of which the following are examples:—

- (a) Heavy repairs to "A" and "B" vehicles, guns, wireless, instruments and small arms.

- (b) Assembly overhauls, including those beyond capacity of 3rd echelon workshops.
- (c) Major modifications to armoured fighting vehicles, guns, etc., including manufacture of parts where necessary.
- (d) Reconditioning of components by building up, welding, electro-deposition, rewiring and machining of tank, vehicle and gun parts and electrical items.
- (e) Manufacture of small castings in light metals, brass, bronze, etc.

Manufacture on a modified scale, although within the capacity of the shops, can only be done at the expense of repairs.

Trade pattern items should not be manufactured except in grave emergencies. Unless the special tools, jigs and equipments are available, such manufacture is most uneconomical.

Handling and Layout

6. 4th echelon workshops cannot be fully established in a theatre of operations overseas until facilities for unloading heavy machinery are operating at ports and the base area is operating as such.

Elements of the advanced components will be brought into the future base area in the early stages of a campaign. They will only be equipped with hand tools, lifting gear and welding plant. Their task will be to do such repairs as they can during development of the permanent site. Their capacity for repair will expand as further elements of the workshop arrive, until full capacity is reached.

7. *Layout.* In view of the vulnerability of large installations to air attack, dispersion will be essential.

To enable control to be maintained, and use to be made of dispersed accommodation, the sections described in para. 2 above are self-contained administratively.

Detailed Layout. (a) The headquarters is responsible for the general organization and supervision of the workshops as a whole. It will also include production, progress, statistics and stores control branches.

- (b) The armoured fighting vehicle workshops can be split up into separate shops for heavy repairs, assembly overhauls and component reconditioning. These in turn can be split into small shops by vehicle makes and types.
- (c) The vehicle workshops will be similar to the armoured fighting vehicle workshops. Both these shops will have a proportion of common user trades allotted to them, e.g., welders, blacksmiths, coppersmiths.
- (d) The armament and equipment workshops will cover all work not done in the other two workshops, i.e., repairs to armaments, armament assemblies, R.E. equipment, wireless and optical equipment, small arms. They will also include machine shops and shops for the common user tradesmen not allotted to the armoured fighting vehicle and vehicle workshops.

In view of the necessity for the workshops and the ordnance depots which supply them to work hand in hand, the plan for the layout of a base workshop must be co-ordinated with the layout of the appropriate sub-depots of the base ordnance depot.

Protection

8. The decision to expand the advanced components of base workshops into full-scale workshops will only be taken when the lines of communication have become firmly established. Base workshops will, however, plan their own defence scheme from the beginning in co-operation with other local units under the direction of the area, or sub-area, commander.

3. Tear off card at perforation, and hand to first OFFICER, MILITARY
POLICEMAN OR DESPATCH RIDER.

4. To whom handed.....Time.....

Date.....

VEHICLE OR EQUIPMENT REPORT

This side to be completed after inspection by a technically qualified person.

LOCATION (Checked).

Map Sheet No.....

Map reference (in clear, six figures).....

Local landmarks.....

DAMAGE (Brief description).

Classification "Y" or "Z".....

Parts required.....

RECOVERY EQUIPMENT REQUIRED.

(Vehicles and Special Items.)

Name and Rank.....

Unit.....

Date.....Time.....

BREAKDOWN CARD

When vehicle or equipment becomes a casualty:

1. Inform unit mechanic or L.A.D.
2. If not available or unable to assist, fill in this card.

[P.T.O.]

Appendix "A" Chapter II

VEHICLE OR GUN EQUIPMENT BREAKDOWN CARD

To be handed to nearest unit or formation H.Q.

Unit.....

Reg. No. (W.D., piece No., etc).....Make Type.....

Mark Model.....

Name allotted by unit (if any).....

LOCATION. (Map sheet No. and map reference in clear or nearest place,
with landmarks and distance.)

1. Overturned. 2. Towable. 3. Towable suspended rear/suspended front.
4. Can be rendered towable within one hour. 5. Transporter required. (*Strike
out items not applicable.*)

BRIEF DESCRIPTION OF DAMAGE and PARTS REQUIRED

Date..... Time..... Name and Rank.....

DIAGRAM 1
PROPOSED R. E. M. E. WIRELESS COMNS. FOR RECOVERY
INF. DIV.

Appendix "B", CHAPTER II

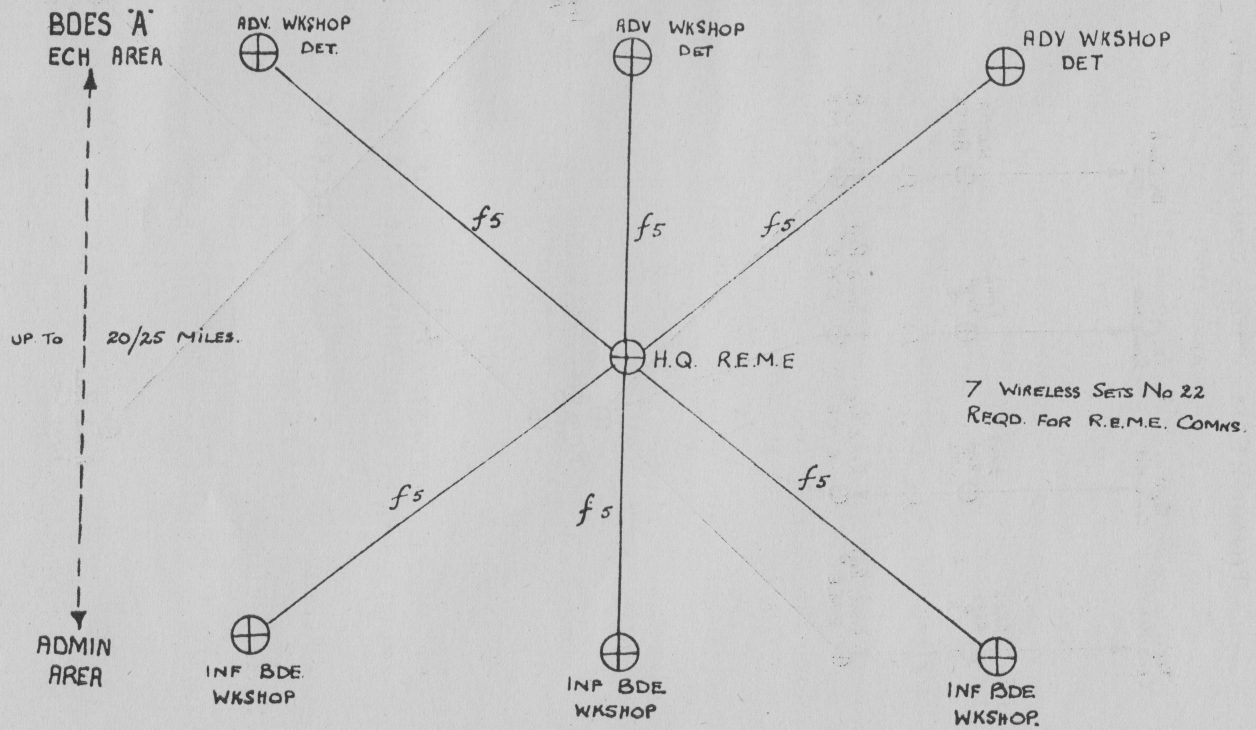


DIAGRAM 2
 PROPOSED R.E.M.E. WIRELESS COMNS. FOR RECOVERY
 ARMD. DIV.

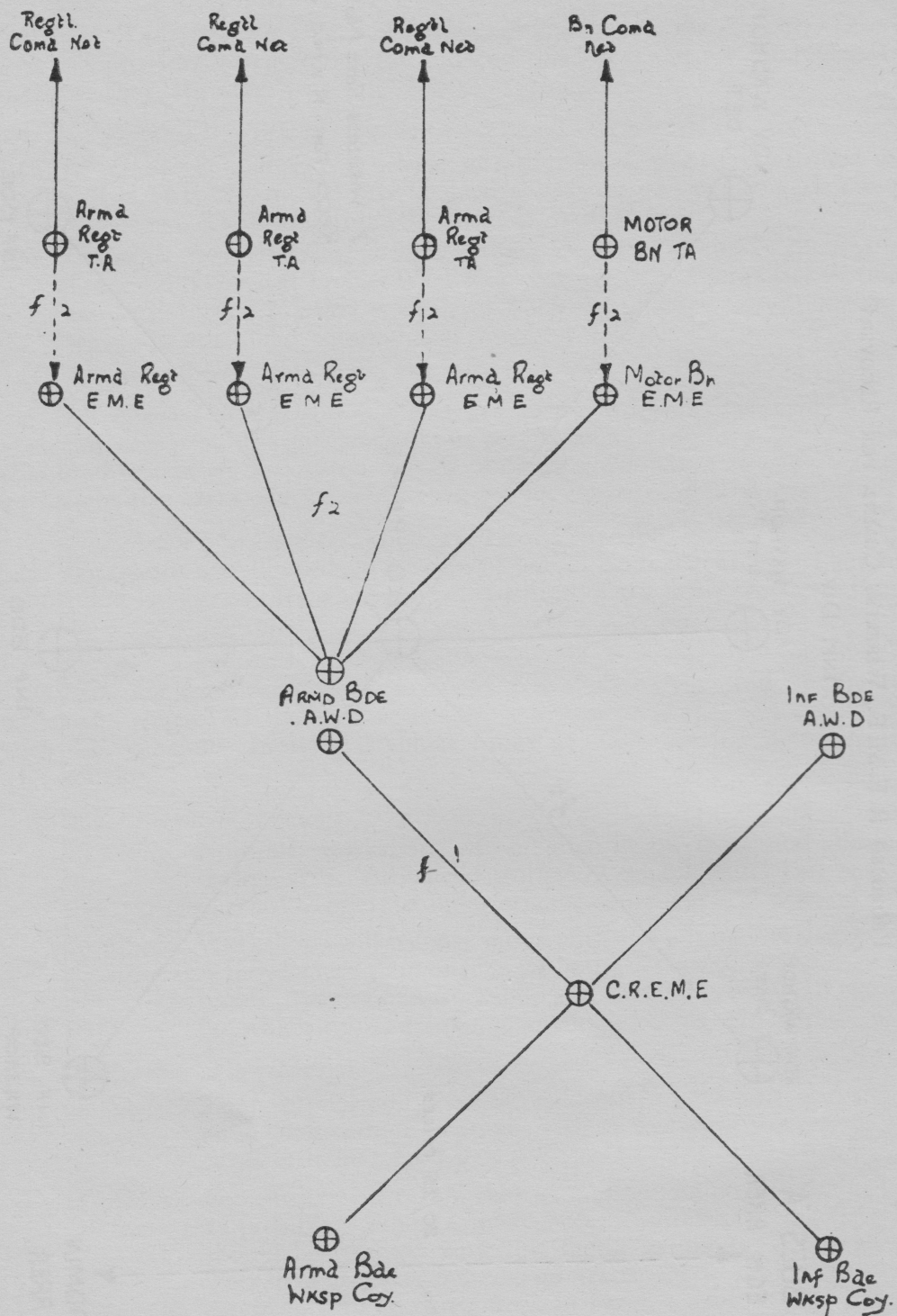
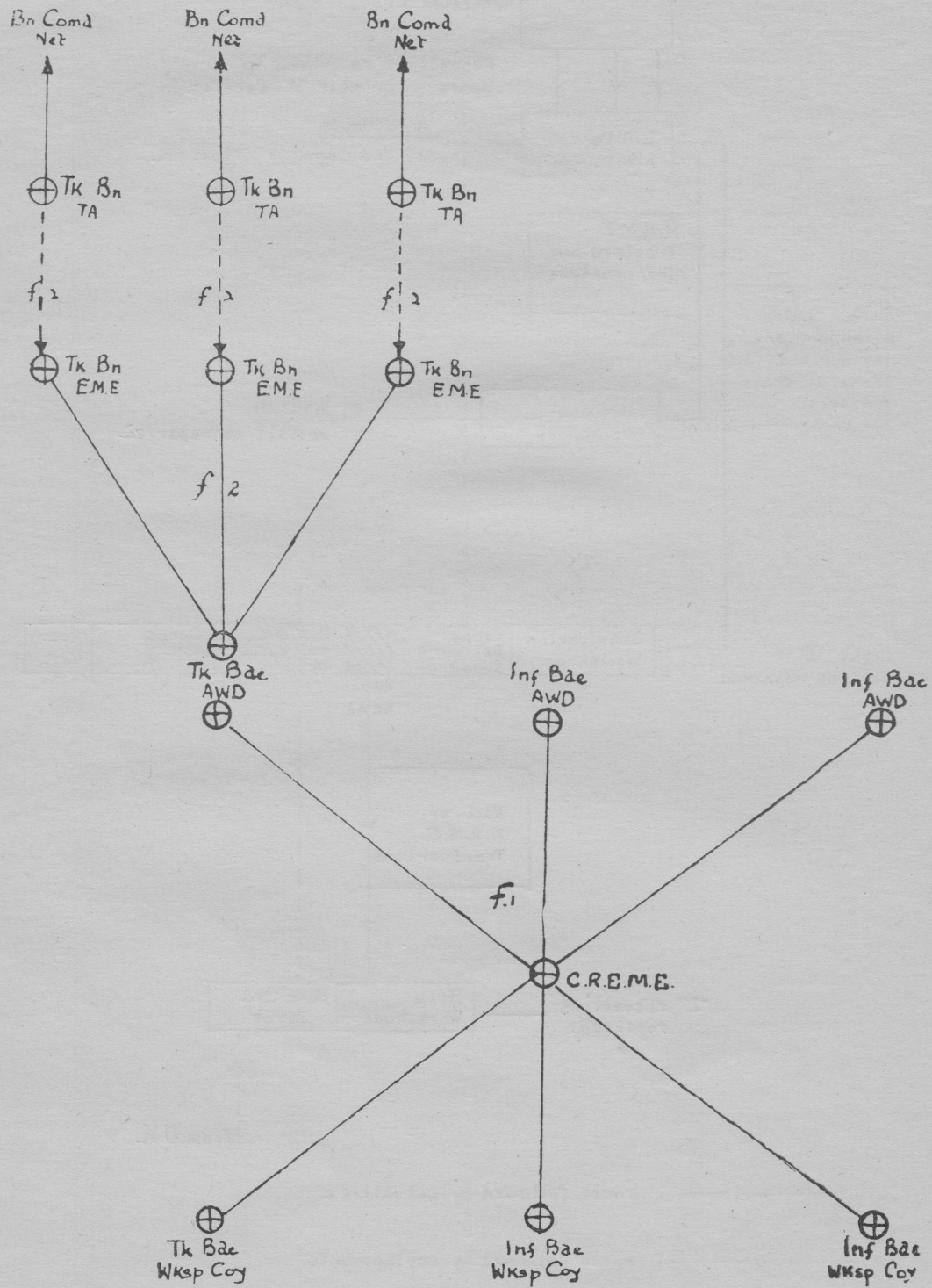


DIAGRAM 3
 PROPOSED R.E.M.E. WIRELESS COMNS. FOR RECOVERY
 DIV.



Appendix "C" CHAPTER II

TANK RECOVERY AND REPLACEMENT DIAGRAM

